

Manhattan

General Construction Company.

Factory,
Plane and Orange Streets, Newark, N. J.

General Offices,
Pittsburg, Pa.

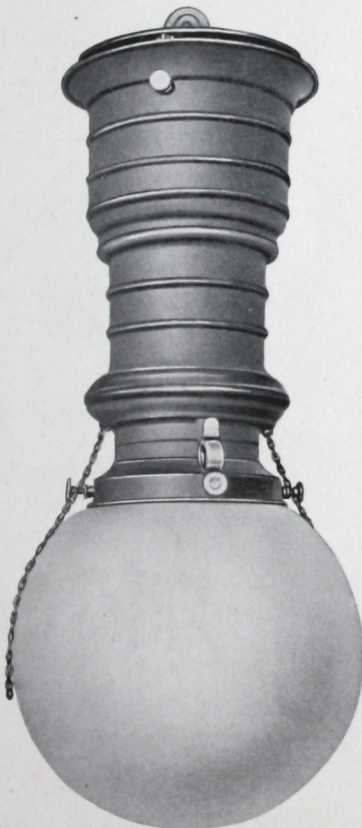
Circular No. 201.

[Superseding Bulletin No. 15A.]

April, 1902.

MANHATTAN MULTIPLE ENCLOSED ARC LAMPS.

For Constant Potential Direct-Current Circuits.



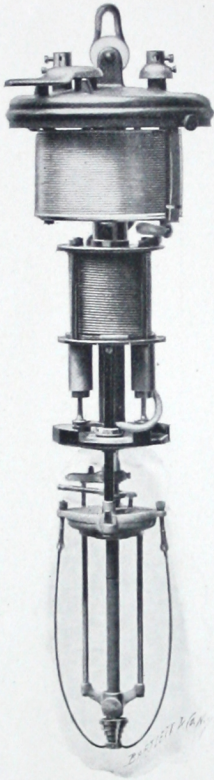
Style No. 601.
Brass Indoor Lamp.

The first direct current concentric enclosed arc lamp placed on the market was the *Manhattan*. It has maintained its position as leader in this field throughout its career.

An arc lamp to give the best results must be simple in construction, contain the fewest possible parts, and be so arranged as to allow easy and quick inspection and repair.

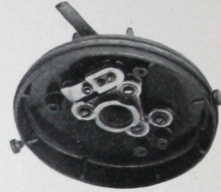
The small details of this lamp have been carefully looked after. It can be taken apart, inspected, and re-assembled very quickly. The standard lamp operates at 5 amperes. We also make a low energy lamp consuming $3\frac{1}{4}$ amperes. These lamps are used where the volume of light required is less. The best distribution of light is secured by using low equivalent lamps and a large number of them.

Construction.—The construction and operation of this lamp will be readily understood after an examination of the features illustrated and described below. Particular attention is called to the illustration showing the mechanism of the lamp.



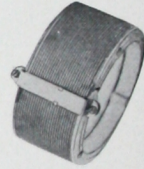
Lamp Mechanism.

Lamp Top.—The top casting of the lamp, containing the binding posts and switch, is weather proof. The binding posts are insulated from the top casting by lava and mica. The switch has a wide break and is substantially made.



Lamp Top.

Resistance.—The resistance is wound on a grooved porcelain cylinder which prevents the wire sagging and short circuiting. The coil can be adjusted by means of the metal bridge and contact clip for circuits of from 100 to 125 volts. The porcelain cylinder is fastened to the lamp top by three bolts and is easily removable.



Resistance Coil.

Magnet.—One magnet only, concentric to the carbon tube, is used with this lamp. Loops are brought out on the magnet winding so that the lamp may be operated at 4.5, 5, or 5.5 amperes. The standard lamp consumes 5 amperes. The lamp is also built to operate at $3\frac{1}{4}$ amperes on 110 volt circuits when so ordered.

Flexible Cable and Carbon Sheath.—A flexible spiral cable conveys current to the carbon sheath carrying the upper carbon. This sheath is guided and prevented from turning by a small projection which travels in a groove drawn in the central tube. The cable retains its spiral form and cannot become tangled. The sheath and cable may be taken out by removing the clutch casting at the bottom of the central tube. Two oval openings in the central tube allow the upper carbon sheath to be firmly held when inserting the carbons.

Clutch.—The clutch is of the ring type designed to hold the carbons firmly and prevent slipping.

Dash Pots.—The dash pots are cast and bored out. This has been found much more satisfactory than the use of tubing. The plungers are of the finest graphite.

Bulb Holder.—The bulb holder consists of an adjustable bale hinged near the top, having a large coiled spring at the bottom which holds the closed bottom bulb firmly, yet lightly, allowing it to expand when heated without breaking. To remove the bulb draw aside the bulb holder.

Glassware.—The enclosing bulb is of the closed bottom type. Its large diameter reduces the breakage to a minimum and greatly facilitates cleaning. The melting of the bulb so common with the old type of bulb having a small opening at its top and bottom, is prevented, and the cost of maintenance is decreased. In addition to the improved appearance of the closed bottom bulb, a much longer life of carbons is obtained. The globe also is of the closed bottom type, nearly spherical.



Standard Bulb.
Style No. 12.



Standard Globe.
Style No. 301.

The inner bulb, outer globe, lava center, carbon holders, flexible cable and lamp top are interchangeable on all D.C. types of Manhattan lamps.

Casings.—Standard lamps are furnished with brass casings of brush brass finish for indoor service, and with copper casings, japanned, for outdoor service. Special finishes will be furnished to order.

Arc Voltage.—This lamp burns at 80 volts at the arc on 110-volt circuits and runs up to 85 volts on 120-volt lines.

Life of Carbons depends largely on quality of carbons used, current consumed and proper closure of bulb. The 5 ampere lamp on 110-volt circuit using $\frac{1}{2}$ " by 12" upper carbon and $\frac{1}{2}$ " by 5" lower carbon will burn about 150 hours. The 220-volt lamp consuming 3 amperes, uses the same size

carbon and burns about 125 hours. All carbons should be high grade and solid.

Dimensions.—The length of the 110-volt double globe lamp is 27 inches over all; the reflector lamp measures 26 inches. Weight of the lamp complete is 21 pounds.

Enclosed Arc Lamp for 110 Volt, 5 Ampere, Direct-Current Circuit.

Style No.	Service.	Shell.	Trim.	Voltage.	Length.	Price.
601	Inside.	Brass.	Globe Type.	110 Volts.	27 Ins.	\$16 50
602	Inside.	Brass.	Porcelain Reflector.	110 "	26 "	16 50
603	Outside or Inside.	Copper.	Zinc Reflector.	110 "	26 "	15 00
653	Outside.	Copper.	Globe Type.	110 "	27 "	14 50

These lamps are furnished for $3\frac{1}{4}$ amperes when so ordered.

LAMPS BURNING IN MULTIPLE ON 220 VOLT DIRECT CURRENT CIRCUITS.

The same mechanism is employed on the 220-volt multiple lamp as on the 110-volt lamp, except that the winding of the magnet and rheostat is made to conform with the requirements of such circuits. These lamps operate at about 150 volts at the arc on 220 volt circuits.

Enclosed Arc Lamps for 220 Volt, 3 Ampere, Direct-Current Circuits.

Style No.	Service.	Shell.	Trim.	Voltage.	Length.	Price.
601 A	Inside.	Brass.	Globe Type.	220 Volts.	29 Ins.	\$17 50
602 A	Inside.	Brass.	Porcelain Reflector.	220 "	28 $\frac{1}{2}$ "	17 50
603 A	Outside or Inside.	Copper.	Zinc Reflector.	220 "	28 $\frac{1}{2}$ "	16 00
653 A	Outside.	Copper.	Globe Type.	220 "	29 $\frac{1}{2}$ "	15 50

Order lamps by style numbers. State voltage of circuit and kind glassware wanted.

Styles 601, 602, 601A, 602A, brush brass finish.

Styles 603, 653, 603A, 653A, dull black finish.

All special finishes, 75 cents per lamp list extra.

An extra charge of 75 cents per lamp list for fancy bands on shells.

A FEW SUGGESTIONS.

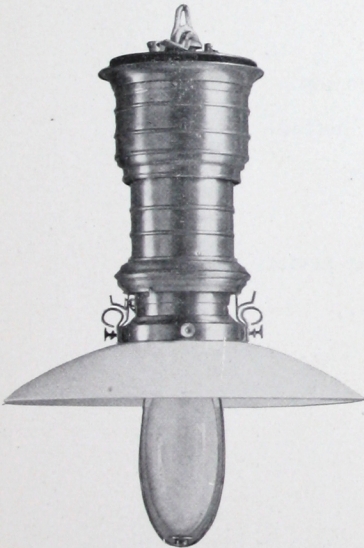
Order by style number and state exact voltage, current, kind of glass-ware (clear or alabaster), and whether for inside or outside service.

Use $\frac{1}{2}$ " by 12" upper and $\frac{1}{2}$ " by 5" lower carbon, both solid, on 5 ampere, 110 volt, and 3 ampere, 220 volt, lamps.

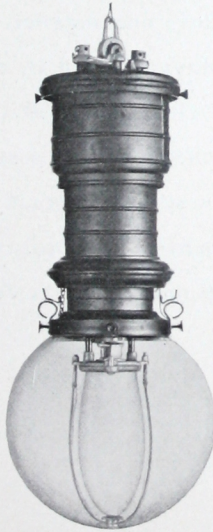
Use $\frac{3}{8}$ " by 12" upper and $\frac{3}{8}$ " by 5" lower carbons, both solid, on $3\frac{1}{4}$ ampere, 110 volt lamps only.

Be sure the lamp is connected up properly.

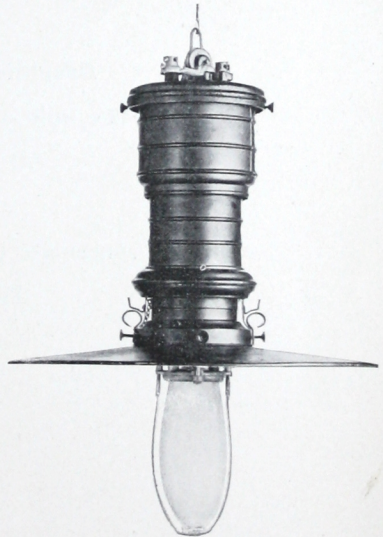
The top casting is marked "P" (positive) and "N" (negative) for guidance.



Style 602.
18" Brass Indoor.
Porcelain Reflector.



Style 653.
Copper Case.
Weatherproof Globe Type.



Style 603.
Copper, Weatherproof.
20" Metal Reflector.

Some Desirable Features of the Manhattan Lamp.

Only one magnet.

Graphite plungers used in dash pots.

The bulb and globe closed at the bottom.

All connections are positive.

No sliding contact.

All parts concentric to central tube, insuring perfect alignment.

Three moving parts only.



FACTORY, NEWARK, NEW JERSEY.
PLANE AND ORANGE STS.,
(D. L. & W. R. R.)